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Does Satisfaction with Democracy Really Increase Happiness? Direct Democracy and Individual Satisfaction in Switzerland

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Abstract This paper takes the influential "direct democracy makes people happy"-research as a starting point and asks whether direct democracy impacts individual satisfaction. Unlike former studies we distinguish two aspects of individual satisfaction, namely satisfaction with life ("happiness") and with how democracy works. Based on multilevel analysis of the 26 Swiss cantons we show that the theoretical assumption on which the happiness hypothesis is based has to be questioned, as there is very little evidence for a robust relationship between satisfaction with democracy and life satisfaction. Furthermore, we do not find a substantive positive effect of direct democracy on happiness. However, with respect to satisfaction with democracy, our analysis shows some evidence for a procedural effect of direct democracy, i.e. positive effects related to *using* direct democratic rights, rather than these rights per se.

Keywords Direct democracy · Satisfaction with democracy · Happiness · Multilevel analysis

Introduction

In recent years much scholarly attention has been devoted to possible positive effects of popular rights on citizens' behaviour and attitudes. While, on the one hand, most research has focused on direct democracy's "educative effects" in terms of increased political information, knowledge, and interest, and thus on the functioning of democracy (Benz and Stutzer 2004; Bowler and Donovan 2002;

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Hero and Tolbert 2004; Lassen 2005; Mendelsohn and Cutler 2000; Smith 2002; Smith and Tolbert 2004; Tolbert et al. 2003; Tolbert and Bowen 2008), the influential "direct democracy makes people happy" research initiated by Frey and Stutzer (2000a, b, c) and Frey et al. (2001) stresses an even broader positive effect of direct democracy, namely on a society's general well-being.

In this paper, we ask whether direct democracy effectively and directly increases citizens' satisfaction with life as suggested by Frey and Stutzer (2000a, b, c) and Frey et al. (2001).[1] We argue that the happiness hypothesis is based on the implicit assumption that the positive relationship between direct democracy and life satisfaction is an indirect one via the intervening variable of satisfaction with how democracy works. This, however, is a rather strong assumption that needs some clarification and empirical testing. The present article therefore addresses the following questions: Does the theoretical fundament of the well-known happiness hypothesis indeed hold? Is there really a close link between satisfaction with democracy and general well-being? And, does direct democracy influence happiness with one's life or rather satisfaction with the political system in which an individual lives?

Our study goes beyond current research in three important respects. First, we provide a more direct test of the association between democracy and happiness than Frey and Stutzer (2000a, b) by incorporating a critical mediating variable in the analysis: citizens' evaluations of how democracy works. Although Frey and Stutzer (2000a, p. 921) argue that democracy influences happiness both through higher satisfaction with policy outcomes that are related to direct democracy and greater involvement in political processes (i.e. a procedural effect), they do not directly examine these conceptual linkages and so leave a critical step in their argument untested. By contrast, we argue that, given the theoretical underpinning, *satisfaction with democracy* must explicitly be integrated into the model when analysing the relationship between direct democracy and general well-being. We therefore assume that satisfaction with life and with democracy are related to each other, but still form distinct aspects of overall satisfaction.

Second, we use a more elaborate operationalization of direct democracy which better reflects the concept as it is used in the theoretical argument. Former studies (e.g. Frey and Stutzer 2000a) conclude that the *procedural* effect of direct democracy on happiness is most important: People become happier if they have the opportunity to participate in direct democracy, and if they use that opportunity. While Frey and Stutzer (2000a) investigate this aspect by comparing citizens of Swiss and foreign nationality, we account for the procedural aspect of direct democracy by distinguishing direct democratic rights (rules-in-form), i.e. the opportunity to participate, and their actual use (rules-in-use), i.e. whether people actually make use of these opportunities. If the relationship between direct democracy and individual satisfaction is indeed procedural in nature, the latter variable measuring the actual frequency of ballot measures in a canton should be the stronger factor in the model.

Third, our study uses a more appropriate research design for investigating the impact of direct democracy on individual happiness. In the first place, data from the

[1] Similar to Frey and Stutzer (2000a, b, c) "satisfaction with life" is used here interchangeably with the terms "happiness" and "subjective well-being".

Swiss Volunteering Survey 2006 allows us to assess two very different forms of satisfaction, namely life satisfaction and satisfaction with how democracy works. In addition, we employ multilevel analysis to uncover the influence of direct democracy, which is a distinguishing feature of the Swiss cantons, on citizens' satisfaction with life and democracy, assessed at the individual level. Because individuals are nested within cantons, it is essential to employ multilevel analysis to avoid biased and inefficient estimates of the effects of democracy on satisfaction. By contrast, Frey and Stutzer (2000a, b) treat this "clustering" of the data as a nuisance which is corrected for by calculating robust standard errors. Dorn et al. (2008, p. 233) apply an "unweighted random-effects ordered probit model", which does not even allow for clustering at the contextual level. This is problematic, as contextual effects are typically overestimated when the hierarchical data structure is not accounted for.

Following the analyses by Frey and Stutzer (2000a, b, c), Frey et al. (2001) and Dorn et al. (2008) the units of investigations, thus, are the 26 Swiss sub-national units, the cantons. The Swiss cantons indeed offer an excellent opportunity to assess the influence of direct democracy on individual satisfaction; these sub-national units exhibit considerable differences in the formal legal access to as well as in the use of popular rights. Some cantons—mainly in the German speaking regions—have very extensive direct-democratic procedures, while others—typically the French and Italian speaking cantons—are more strongly oriented towards the type of representative democracy with a restricted access to direct democratic instruments (Feld and Savioz 1997, p. 511; Freitag and Vatter 2000; Ladner 1991; Linder 2005, p. 272; Vatter 2002; Vatter and Freitag 2007).

The paper is organized as follows. To begin, the theoretical considerations and hypotheses regarding the relationship between direct democracy, satisfaction with democracy, and life satisfaction will be discussed. Next, we introduce the research design, the method, and the variables. In "Empirical results" section, the hypotheses will be subjected to the scrutiny of systematic statistical evaluation, based on a quantitative comparison of the federal states of Switzerland—the cantons. This article will then conclude with a brief discussion of the findings.

Theory and Hypotheses

Jean-Jacques Rousseau in his "Contrat social" (1762) considered the Swiss the happiest nation in the world since it had the strongest forms of direct democratic participation at its disposal and was therefore able to take its political fate into its own hands: "When we see among the happiest people in the world bands of peasants regulating the affairs of state under an oak tree, and always acting wisely, can we help feeling a certain contempt for the refinements of other nations, which employ so much skill and effort to make themselves at once illustrious and wretched?" (Of the Social Contract, Book IV, Chapter 1).

More than two hundred years later, Barber (1984) in his influential work "Strong Democracy" argued in a quite similar way and suggested that direct democratic participation would engage citizens and lead them to have a more positive

perception of democracy. Obviously, it is an argument clearly in keeping with a long-held tradition from classical democratic theory that citizen participation is not just of value in and of itself, but it also promotes civic engagement and more positive attitudes towards the political system and democratic processes.

Indeed, there are several arguments and earlier findings which support the hypothesis that direct democratic institutions can be expected to raise citizens' subjective well being and their satisfaction with how democracy works.[2] First, according to the institutional economics literature, direct democracy is an effective instrument to discourage rent-seeking among public decision-makers and to solve the principal-agent problem (Frey 1994). In this view, governments in modern democracies pursue their own objectives rather than those of the majority of the electorate. As a consequence, the actions of the agent (the government) need not correspond to the interests of the principal (the majority of the governed), on behalf of whom the agent ought to act. In representative democracies, the principal-agent problem is solved by periodically recurring elections, which prevent interests from diverging over a long period of time. In political systems with direct democratic elements, there are further instruments of popular control in addition to elections, namely referendums and initiatives which help to reduce the principal-agent problem. Feld and Savioz (1997, p. 515), for example, argue that

> if elements of direct democratic decision making ceteris paribus reduce the principal agent problem compared with representative democracy without inducing a lower level of information of the decision makers and if it enhances competition in a society with political collusion, then the efficiency of government activities should be higher in direct than in representative democracies.

Popular votes, thus, reduce the discretion of political decision-makers in the period between elections and help to break self-interest oriented political cartels (Frey 1994, p. 340ff.). As a consequence of the more direct participation rights of the people, politicians are better controlled and monitored than in representative systems and forced to follow the preferences of the median voter. Consequently, governmental decisions and policy outputs are closer to the interests of the citizens, and this should result in *higher satisfaction with government and democracy*.

Second, the institutions of direct democracy extend the citizens' opportunities to get involved in the political process. Experimental evidence (e.g. Bohnet and Frey 1999; Tyler 1990) demonstrates that this procedural effect is independent of the governmental outcome itself. Both the opportunity to participate, as well as the act of participation in policy decisions, can be expected to promote more positive views about democracy (Bowler and Donovan 2002). This suggests that procedural utility of direct participation in politics, in addition to its outcome utility, is an important source of *satisfaction with democracy*. In fact, the utility gained from participation and procedural fairness was found to be even larger than the utility gained from a democratic political outcome (Stutzer and Frey 2003). This is in line with the empirical

[2] In this context we also refer to the literature on other political determinants of individual satisfaction with life and democracy, which are however not at the center of this paper (e.g. Andersen and Guillory 1997; Radcliff 2001).

studies by Hibbing and Theiss-Morse (2001, 2002) showing that people are often more concerned about the processes by which government renders decisions (e.g. the influence of interest groups) than the actual outcomes or policies themselves.[3]

Third, in a series of influential empirical studies, Frey and Stutzer (2000a, b, c) and Frey et al. (2001) confirm the positive effect of direct democracy on people's satisfaction at the sub-national level in Switzerland. The authors used survey data in which individuals reported their "subjective well-being", called "happiness" for short. They consistently found that people living in Swiss cantons reported significant higher levels of "*happiness*" when there was easier access to direct democratic institutions.[4]

As we argued earlier, however, although Frey and Stutzer suggest that direct democracy influences happiness by improving individual satisfaction with the way democracy works, they fail to examine the important mediating role of democratic satisfaction. We argue that satisfaction with democracy must explicitly be integrated into the analysis—both theoretically and empirically—when investigating the relationship between direct democracy and general well-being.

In the worst case, the relationship found by Frey and its colleagues could be just a statistical artifact. As former studies have shown, individual happiness is strongly related to other aspects of contentment in general, and satisfaction with democracy in particular (Graham and Pettinato 2001, p. 248). If direct democracy augments satisfaction with democracy as the comments above suggest, and given a (strong) correlation between the two facets of individual satisfaction, then omitting satisfaction with democracy could very well produce a spurious relation between direct democracy and happiness.

This latter view is in accordance with Veenhoven (2000, p. 4f.) who distinguishes on the one hand between life chances and life results, i.e. opportunities to do well and actual outcomes, and on the other hand between external and internal qualities of life, i.e. the quality of the environment and of the individual situation.[5] Adapting his typology to the concept of satisfaction with democracy and individual happiness, we can conclude that the two aspects are related, but still distinct phenomena. Happiness as conceptualized by Frey and Stutzer (2000a, b, c) refers to the individual, i.e. inner quality and to the outcome dimension—i.e. to "Appreciation of life" or "Enjoying life" (Veenhoven 2000, p. 7, 2004, p. 13f.). Satisfaction with democracy, in contrast, is much more related to the quality of the environment. Moreover, this kind of satisfaction may be influenced by both opportunities and outcomes (see also the discussion below). As a result, it corresponds best to what Veenhoven (2000, p. 6, 2004, p. 5) calls "livability of environment".

[3] However, according to Hibbing and Theiss-Morse (2002) this does not mean that American citizens want to be more strongly involved in political decision making. Contrary to the prevailing view whereby people want greater involvement in politics, empirical results by Hibbing and Theiss-Morse (2001, 2002) as well as Hibbing and Alford (2004) show that a majority of American citizens do not care about politics and do not desire a more direct voice in political decision making.

[4] Recently, Dorn et al. (2008) re-evaluate the relation between direct democracy and subjective well-being in Switzerland using new data from the Swiss Household Panel. In contrast to Frey and Stutzer (2000a, b) they find that once language is controlled for, no robust significant relationship between the extent of popular rights and life satisfaction can be observed.

[5] Combining these two criterion Veenhoven (2000, p. 6) distinguishes four types of life quality, namely "Livability of the environment", "Life-ability of a person", "Utility of life", and "Appreciation of life".

Regarding the happiness-hypothesis this typology has two consequences: Firstly, satisfaction with democracy and life satisfaction are indeed related to each other. Most importantly, they both depend on the provision of needs and wants: Individual satisfaction can be influenced by the context or the life situation and will therefore vary over time and across contexts (Inglehart et al. 2008).[6] Nevertheless, they refer to very different "qualities of life" and will consequently be influenced by different factors (Veenhoven 2000, p. 35). This perspective, second, lends support to our argument that direct democracy is related to satisfaction with democracy, which actually refers to the quality of the environment in which an individual lives. Conversely, individual happiness may depend less on the institutional context, and more on how well individual needs and wants are met, e.g. factors such as individual social status and integration.

This discussion implies that the traditional happiness-hypothesis (Frey and Stutzer 2000a, b, c; Frey et al. 2001), should be considered alongside two alternative hypotheses.

The Traditional Happiness Hypothesis (H1): The more extensive direct democracy in a canton is, the higher will be individual happiness.

The Indirect Happiness Hypothesis (H2):

(a) The more extensive direct democracy in a canton is, the higher will be citizen satisfaction with democracy.
(b) The higher citizen satisfaction with democracy, the more satisfied people are with their lives.

The Satisfaction with Democracy Hypothesis (H3): The more extensive direct democracy in a canton is, the higher will be citizen satisfaction with democracy. In contrast, individual happiness is not related to a canton's direct democracy.

Figure 1 summarizes these expectations. The solid line represents H1 suggesting a direct link between direct democracy and happiness, according to Stutzer and colleagues. The dashed arrows stand for the indirect happiness hypothesis (H2), whereby we do not postulate a direct effect of direct democracy on general well-being, but rather an indirect effect via satisfaction with democracy. Finally, the dotted arrows according to H3 imply that direct democracy is related to satisfaction with democracy, but does not—neither directly nor indirectly—influence subjective well-being.

As opposed to Frey and Stutzer (2000a, b, c), we account for the procedural aspect of direct democracy by distinguishing between the formal availability of the instruments of direct democracy ('rules-in-form') and the frequency of their actual use in practice ('rules-in-use') (cf. Rothstein 1996, p. 146), assuming that the existence of formal rights does not necessarily entail their usage (Vatter 2002). For example, the number of ballot initiatives in the period 1990–2005 is highest in the cantons of Zurich, Basle City, and Geneva, even though the formal conditions to launch a popular

[6] This view varies from other perspectives that either perceive individual satisfaction as a biological factor or a trait (Diener et al. 2003) or follow a social comparison approach (Easterlin 2003).

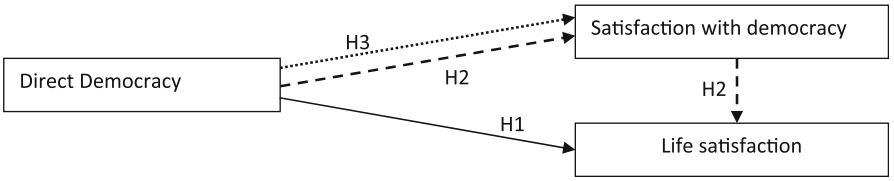

Fig. 1 Multivariate model for the direct democratic influence on individual satisfaction. *Note*: Own illustration

initiative are more favorable in other cantons like Aargau, Basle Country, and Nidwalden. In sum, not formal citizen' rights alone should lead to political results that are more likely to be acceptable to a large majority of the population, but citizens' satisfaction with democracy may arise from their actual participation in the political decision-making process and from the perceived extent of the procedural fairness of this process: Ballot votes may produce the conditions for a discursive process (Habermas 1992; Steiner et al. 2004) which is—unlike most other democratic processes—open to the whole population. Studies in the Swiss context (e.g. Feld and Kirchgässner 2000, p. 289ff.) show that citizens in a direct-democratic environment are better informed than their counterparts in a representative democracy. On the one hand, they need this information in order to make their decision at the ballot, but on the other hand, information is also necessary to participate in the dialogue with other citizens. Moreover, the public discourse during a ballot campaign enhances citizens' knowledge about different arguments for and against a particular decision. Finally, in the Swiss direct democratic system, the role of money, does not receive the same level of importance than in the US context. Kriesi (2009), for instance, finds the overall relationship between campaign spending and the outcome of the vote to be very weak in Switzerland. As a result, we can hypothesize that due to the direct democratic process individuals will better accept the decision taken at the ballot—independently of whether he or she voted in accordance with the final result—and feel more strongly aligned with their community.

Given these arguments, we thus assume that the actual use of democratic rights and less their formal availability influences individual satisfaction with democracy and/or life (H4):

> The actual use of direct democratic instruments (rules-in-use) is the stronger predictor of individual satisfaction with democracy and/or life than the institutional design of these instruments (rules-in-form).

Research Design, Method, Data and Variables

Following the discussion above we consider both satisfaction with democracy and life satisfaction for our empirical model and *simultaneously* estimate how direct democracy (and other controlling variables at the individual and contextual level) impact on these aspects of satisfaction (see Fig. 1). Furthermore, applying a

multivariate multilevel statistical framework,[7] we can implement a path model in which satisfaction with democracy builds an explanatory factor into the model of life satisfaction (according to H2). If the theoretical assumptions of the *indirect happiness hypothesis* hold, we would expect to find a significant path from satisfaction with democracy to life satisfaction.

Another advantage of this design is that the "covariance" between the two variables on the individual and contextual level can be calculated. Not only can distinct variance terms be estimated summarising the degree to which the two types of satisfaction vary between cantons, but we can also calculate a "joint covariance" in order to assess how the two variables covary across the cantons (Subramanian et al. 2005, p. 667). This provides us with further information on whether and which of the hypotheses can best be supported by the empirical data. We use a Bayesian estimation approach, which as been shown to perform better than maximum likelihood, particularly when employing multilevel models with a small number of level 2 units (Browne and Draper 2006).

Individual level data were obtained from the Swiss Volunteering Survey 2006, which is a telephone survey of the permanent resident population conducted by the Swiss Society of Public Utility. The sample contains 5,565 respondents ages 15–92.[8] We have two dependent variables, namely life satisfaction, which corresponds to Frey and Stutzer's (2000a, b, c) conception of happiness, as well as satisfaction with democracy. For the measurement of these variables, answers to the following questions from the Swiss Volunteering Survey 2006 are considered:

- *Life satisfaction*: "Generally speaking, how satisfied are you with your life? Where would you place yourself on a scale from 0 to 10, where 0 means 'very unsatisfied' and 10 means 'very satisfied'?"
- *Satisfaction with democracy*: "Generally speaking, how satisfied are you with how democracy in Switzerland works? 0 means 'not at all satisfied', 10 means 'very satisfied'?"[9]

[7] For a discussion of multilevel structural equation models see Hox and Maas (2004).

[8] Of the 7,409 persons interviewed, 1,844 show missing values for the dependent and/or independent variables and are therefore excluded from the analysis. The number of respondents per canton are as follows: Zurich (896), Bern (669), Lucerne (254), Uri (73), Schwyz (117), Obwalden (62), Nidwalden (83), Glarus (76), Zug (66), Fribourg (181), Solothurn (178), Basel-Town (166), Basel-Country (183), Schaffhausen (89), Appenzell Outer Rhodes (76), Appenzell Inner Rhodes (71), St. Gall (290), Grisons (132), Argovia (387), Thurgau (142), Ticino (244), Vaud (438), Valais (189), Neuchâtel (136), Geneva (285), Jura (82).

[9] Unfortunately, the question does not explicitly relate to the cantonal level. In the Swiss context, it can however be assumed that individual perception of how democracy works in Switzerland is largely influenced by the canton in which an individual lives. On the one hand, Switzerland is one of the most decentralized countries in the world (Filippow et al. 2001), in which policy making largely occurs at the cantonal level. Various authors, on the other hand, argue that this primacy of the canton transfers to citizens' perceptions. As Auer (1990, p. 15) states: "For the Swiss, the state is not the federation, but the canton" (own translation). Similarly it is often argued that the Swiss Federation is just an emanation of the cantons, in other words a "secondary or derivate body, a mere product of inter-cantonal agreements" (Germann and Klöti 2004, p. 321). These arguments refer to the political, but also historic, symbolic and emotional importance of the Swiss subnational units, which generally look back on a very long history involving important identity-forming forces.

In this context it must be mentioned that the concept of "satisfaction with democracy" is not uncontested. As Canache et al. (2001) for instance demonstrate the indicator captures multiple dimensions of political support, including system support, support for authorities as well as support for democracy. While this multidimensionality may be a problem mainly when comparing different countries or developments over time, in our context it quite well corresponds to a perspective according to which direct democracy is more than a pure systemic feature, but also involves specific political processes and cultures.

For the measurement of the macro-level variables information from the Comparative Cantonal Data Set (CCDS) is used. In order to measure direct democracy, the institutional design of direct democratic instruments (rules-in-form) as well as their use (rules-in-use) is integrated into the analysis. The former aspect corresponds to the variable used by Dorn et al. (2008), Frey and Stutzer (2000a, b, c) and Frey et al. (2001). This *index of direct democratic rights* in the Swiss cantons is constructed to measure the barriers citizens encounter when entering the political process. The barriers are in terms of the necessary signatures required to launch a ballot measure (absolute and relative to the number of citizens with the right to vote), the legally allowed timeframe in which to collect the signatures, and the level of new expenditures per capita allowing a financial referendum. Each of these restrictions is evaluated on a six-point scale: 1 indicates a high barrier (i.e. it is more difficult to get a ballot measure on the ballot) and 6 a low one (i.e. it is quite easy to get ballot measures on the ballot). To operationalize the rules-in-use we use the average number of *yearly cantonal ballot measures* between 2000 und 2004.

In addition to our central explanatory variables, a series of potential relevant factors from the macro and micro-levels should be considered as control variables. In the choice of these variables we rely on the studies by Dorn et al. (2008), Frey and Stutzer (2000a, b, c) and Frey et al. (2001). On the individual level we integrate the demographic variables age (in years and age squared), gender (male/female), citizenship (foreigner/Swiss nationality), level of education (low, medium, high), family situation (married/cohabiting versus single as well as whether a person has children or not), and employment status. Moreover, economic indicators such as household income and whether an individual is unemployed are incorporated. On the contextual level the most important controlling variables include linguistic-cultural background and the economic and fiscal situation in a canton (Dorn et al. 2008; Frey and Stutzer 2000a, b).[10] Moreover and following Dorn et al. (2008) we also include religious traditions. We use the values of the contextual factors measured prior to each cantonal election to assure that the potential cause precedes

[10] Dorn et al. (2008, p. 234) propose to account for individual cultural background in terms of language spoken at home. As this information is not contained in our data set we do not consider this variable. In order to account for the Dorn et al.'s (2008) finding whereby individual belonging to a language group is the crucial aspects we measure cantonal linguistic culture not only in terms of regional dummies, but also use the population share of German-speakers in a canton, which better capture linguistic culture and heterogeneity in bilingual cantons like Fribourg, Berne or Valais. Further analyses not presented here indeed show that the models including this variable better fits the data compared to a dummy specification.

the effect.[11] More detailed information on the variables, operationalizations, and sources can be found in the appendix.

Empirical Results

In this section, a three-stage procedure will be presented to examine the relationship between direct democracy and satisfaction with democracy and life. In the first analytical step, we make use of random intercept models that only include individual variables in order to investigate how the two dependent variables relate to each other and whether they are determined by similar or different mechanisms at the individual level (Table 1). In the second step, the direct democracy variables will be added to expand the model (Fig. 2). Finally, in a third step, the robustness of the estimation will be tested by including further controlling variables, the linguistic background among them, at the cantonal level (Figs. 4, 5).

Table 1 presents the individual level models. In Model 1 the identical individual covariates are used to explain satisfaction with democracy and life simultaneously. The separate coefficients for each of the dependent variables clearly demonstrate that satisfaction with democracy and life are subject to different mechanisms at the individual level. Only three variables impact happiness and satisfaction with democracy in the same way: Lower education is accompanied with lower satisfaction both with one's life and with how democracy works. Moreover, while satisfaction first decreases and then increases with age, having children does not influence satisfaction with democracy or life.

For all other variables different effects on the two aspects of satisfaction can be found: Men evaluate the functioning of democracy better than women, while the contrary is true regarding life satisfaction. Married or cohabiting individuals are more satisfied with both how democracy works and life, but the effect on the latter variable is significantly stronger. A similar pattern can be observed regarding unemployment: Unemployed persons are less happy with life and democracy, but happiness in particular is negatively affected by unemployment. Belonging to a denominational group increases satisfaction with democracy, the credible interval for this variable however includes zero regarding happiness. Moreover, high political interest more strongly enhances satisfaction with democracy than with life.

Finally, we find again opposing relationships between citizenship and satisfaction: While foreigners are more satisfied with the way democracy works in Switzerland than Swiss citizens, they tend to be less happy with their lives. This finding is of particular interest if contrasted with the results by Frey and Stutzer (2000a, b, c) and Frey et al. (2001). The authors argue that foreigners do not become happier in a direct democratic context, since they are not integrated into the political process and will therefore not be able to profit from direct democracy's procedural effects. Given our findings, whereby foreigners are indeed less satisfied with life, but in fact more satisfied with democracy, their conclusion must be questioned. We

[11] We refrain from integrating further institutional aspects such as local autonomy (Frey and Stutzer 2000a).

rather have to conclude that foreigners—due to their non-inclusion—have a less differentiated, and thus probably a more stylized, positive view of how democracy in Switzerland works.[12]

What also follows from Model 1 is that the covariance between life satisfaction and satisfaction with democracy is positive and significant at the individual level, meaning that individuals who are satisfied with democracy also tend to be happier. Still, the correlation is quite limited amounting to only 0.09. In contrast, the covariance between cantons does include zero, which implies that cantons with high mean satisfaction with democracy do not exhibit a substantially higher average happiness. From these findings we can conclude that there is some relation between satisfaction with democracy and with life, but it is rather limited.

In model 2, satisfactions with democracy and with life are modelled in a path model, suggesting that the two indicators are not just correlated with each other, but that the former influences the latter (thus, the fundament of H2). The estimations show that satisfaction with democracy contributes to a higher overall well-being. The inclusion of this path in the structural model, however, does not significantly improve the model, which can be seen from the fact that the deviance is only marginally reduced.[13]

From this first step of analysis the following conclusions can be drawn: First, it is reasonable to perceive happiness and satisfaction with democracy as two correlated phenomena, i.e. two aspects of a broader concept of individual satisfaction. In contrast, there is no evidence for a very close relationship or even causality between them. This lends support to the idea that happiness and satisfaction with democracy refer to quite different "qualities of life" (Veenhoven 2000) which are moreover "produced" by different mechanisms. The theoretical assumption on which the indirect happiness hypothesis (H2) is based therefore occurs to be weak. Second, when testing the happiness hypothesis it is important to apply a bivariate response model. Given the significant covariance between satisfaction with democracy and with one's own life, a single response model that neglects the former would possibly lead to biased results regarding the latter: If direct democracy is related to satisfaction with democracy, but not to happiness—as suggested in our hypothesis H3—ignoring satisfaction with democracy may overestimate the direct democratic effect due to the correlation between satisfaction with democracy and with life.

Next, we proceed by integrating the central cantonal characteristics into the model, namely direct democracy. More precisely, we want to simultaneously test

[12] This suggestion is supported by further analyses not shown, in which a Dummy is included taking the value of one if foreigners are allowed to vote at the cantonal level. (This applies to only two cantons: Jura since 1978 and Neuchâtel since 2000). It can be seen from these models that cantons allowing foreigners to participate in the political process exhibit less satisfaction in democracy than cantons that exclude foreigners. Also, this effect does not substantially differ between Swiss and foreign citizens.

[13] In further estimations not presented here, the opposite direction of the path, leading from life satisfaction to satisfaction with democracy, has also been tested and proved to be of similar size than the one shown in model 2. Overall, this further corroborates our previous finding whereas individual satisfaction with democracy and with life must be seen as correlated concept—maybe even reinforcing each other to a certain extent (Graham and Pettinato 2001, p. 255)—but that we cannot speak of causality between them.

Table 1 Individual level models to explain satisfaction with democracy and life

	Model 1		Model 2	
	Satisfaction with democracy	Life satisfaction	Satisfaction with democracy	Life satisfaction
Fixed effects				
Constant	7.12 (6.75/7.49)	9.27 (8.94/9.59)	7.12 (6.76/7.51)	8.72 (8.38/9.06)
Individual level				
Sex (Ref. cat: female)	0.16 (0.08/0.24)	−0.13 (−0.21/−0.06)	0.16 (0.07/0.25)	−0.15 (−0.22/−0.07)
Foreigner (Ref. cat.: Swiss)	0.46 (0.34/0.59)	−0.43 (−0.54/−0.32)	0.47 (0.34/0.60)	−0.46 (−0.58/−0.35)
Age	−0.07 (−0.08/−0.05)	−0.06 (−0.07/−0.05)	−0.07 (−0.08/−0.05)	−0.06 (−0.07/−0.04)
Age squared	0.00 (0.00/0.00)	0.00 (0.00/0.00)	0.00 (0.00/0.00)	0.00 (0.00/0.00)
Civil status (Ref. cat.: single)	0.16 (0.06/0.25)	0.52 (0.44/0.61)	0.16 (0.07/0.25)	0.51 (0.43/0.59)
Children (Ref. cat.: no children)	0.05 (−0.07/0.17)	0.03 (−0.07/0.13)	0.05 (−0.07/0.17)	0.02 (−0.08/0.13)
Education (Ref. cat.: medium education)				
Low education	−0.19 (−0.34/−0.07)	−0.21 (−0.32/−0.10)	−0.19 (−0.32/−0.06)	−0.19 (−0.32/−0.09)
High education	0.22 (0.12/0.32)	0.01 (−0.07/0.10)	0.22 (0.12/0.32)	−0.00 (−0.09/0.08)
Income	−0.04 (−0.06/−0.01)	−0.07 (−0.10/−0.05)	−0.04 (−0.06/−0.01)	−0.07 (−0.09/−0.05)
Unemployed	−0.24 (−0.55/−0.02)	−0.73 (−0.95/−0.52)	−0.24 (−0.50/−0.01)	−0.72 (−0.93/−0.51)
No denomination/religion	−0.20 (−0.35/−0.07)	−0.10 (−0.21/0.00)	−0.20 (−0.32/−0.07)	−0.09 (−0.20/0.02)
Political interest	0.11 (0.09/0.13)	0.03 (0.02/0.05)	0.11 (0.10/0.13)	0.03 (0.01/0.04)
Satisfaction with democracy				0.08 (0.06/0.10)
Random effects				
Variance individual level	3.55 (3.45/3.67)	2.68 (2.60/2.76)	3.55 (3.44/3.66)	2.66 (2.58/2.74)
Variance cantonal level	0.03 (0.02/0.06)	0.02 (0.01/0.04)	0.04 (0.02/0.07)	0.02 (0.01/0.03)
Correlation individual level	0.09			
Correlation cantonal level	0.46		0.36	
Deviance	44072		44071	
N	5565 (26)		5565 (26)	

Note: Multivariate response multilevel models; posterior mean and 90% credible interval (in brackets) presented. All models based on Bayesian estimation, 50,000 iterations (burn-in: 5,000); diffuse priors (gamma priors). No signs of non-convergence

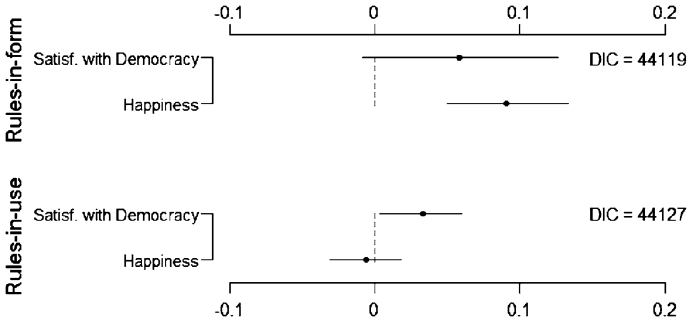

Fig. 2 Direct democracy and satisfaction with democracy and life. *Note*: Multivariate response multilevel models; posterior mean and 90% credible interval of the direct democratic variable presented. All models control for individual level effects as shown in Table 1 and are based on Bayesian estimation (50,000 iterations, burn-in: 5,000; diffuse priors (gamma priors); no signs of non-convergence)

whether the direct democratic context indeed influences satisfaction with life or whether the effects found in earlier studies were only due to the correlation between happiness and satisfaction with democracy. In so doing and in accordance to hypothesis H4, we distinguish between direct democratic rights (rules-in-form) and the actual use of direct democracy (rules-in-use). Figure 2 presents the estimated effect of these direct democracy-indicators on individual satisfaction (see also Appendix Table 3). The individual level variables—although included in all models—are not shown for the sake of clarity and since these effects are highly consistent to those shown in Table 1.

Figure 2 demonstrates that the rules-in-form positively influence both life satisfaction and satisfaction with democracy, whereby the 90% credible interval in the latter case however just includes zero. Moreover, when measuring direct democracy by means of the actual use of direct democratic rights, thus taking into account the procedural aspects, we find a positive effect on satisfaction with democracy only, but not regarding overall well-being. Even without the inclusion of linguistic culture, which proved to be the "elk test" for the direct democracy variable in the Dorn et al. (2008) study, the simultaneous modelling of both satisfactions with democracy and life satisfaction leads to ambiguous direct democracy effects.

We argue that these results provide preliminary support for the theoretical argument that direct democracy—if at all—impacts satisfaction with democracy but not life satisfaction (H4). This conclusion needs some explanation with reference to the two direct democracy indicators. As Fig. 3 initially shows, rules-in-use and rules-in-form are only little correlated (left plot). Cantons with easy access to direct democratic instruments tend to exhibit a more intense use of these instruments, but the correlation is not substantially different from zero (Correlation = 0.29 [95% Confidence interval: −0.11–0.61]). Second, while the rules-in-form variable is highly correlated with linguistic culture (middle plot: 0.82 [0.63–0.92]), this is much less the case regarding rules-in-use (right plot, 0.19 [−0.21–0.54]). This means that while the effect of direct democratic rights on individual satisfaction may be strongly influenced by the inclusion of linguistic culture due to multicollinearity (or

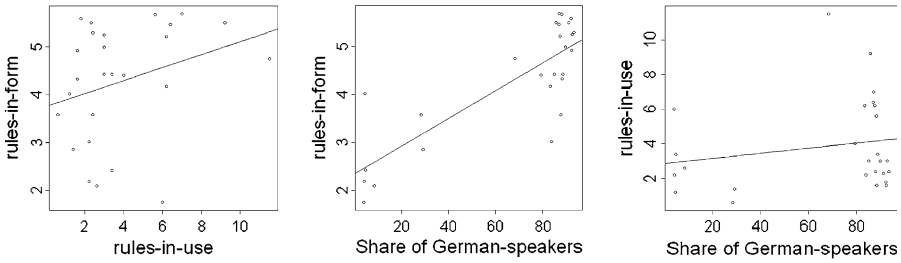

Fig. 3 Relationship between linguistic culture and direct democracy. *Note*: Scatter plot and fitted bivariate regression line

in other words is subject to an omitted variable bias in Fig. 2), this should be less so with regards to the use of direct legislation.

In the last step and following Frey and Stutzer (2000a, b, c) as well as Dorn et al. (2008) we therefore further integrate linguistic culture, religious culture and economic performance into the models (Figs. 4, 5, see also Appendix Tables 4 and 5 for the complete models). In accordance with Dorn et al. (2008) language region is the strongest of these variables, whereby respondents in the German-speaking part of Switzerland are more satisfied both with democracy and with their lives. High financial power as well as a catholic culture in a canton also tend to increase satisfaction with how democracy works, while these controls are not at all related to individual happiness. We estimated a series of models including different combinations of these variables. As the choice of variables obviously influences the marginal effects of direct democracy, the posterior means and 90% credible interval for the direct democracy indicators are shown for each model.

Figures 4 and 5 demonstrate that our findings with regards to the relationship between direct democracy and happiness are now even more conservative than those presented by Dorn et al. (2008). In none of the 12 models do we find a substantive and positive effect of direct democracy on happiness. If we consider the direct democratic process (Fig. 5)—which according to Frey and Stutzer (2000a, b) is central to the happiness hypothesis—the mean effect is even slightly negative.[14]

Concerning satisfaction with democracy the mean effect of direct democracy is—not surprisingly—also weakened and even turns slightly negative when including the controlling variables. This is particularly the case when direct democracy is operationalized in terms of rules-in-form being strongly correlated with language region. But in view of Fig. 5 we can conclude, that even if linguistic culture, Catholicism and financial power are controlled for, there is a positive relationship between the use of direct democratic instruments and satisfaction with democracy. The densities of the direct democracy parameter in these six models are largely on the positive side, meaning that with a high probability of roughly 90% frequent ballot measures in a canton are associated with a better perception of how

[14] The inclusion of direct democracy completely explains the cantonal differences in happiness in the models presented in Fig. 2. In the following models (Figs. 4, 5) the random intercept at the cantonal level is therefore omitted in the happiness equation.

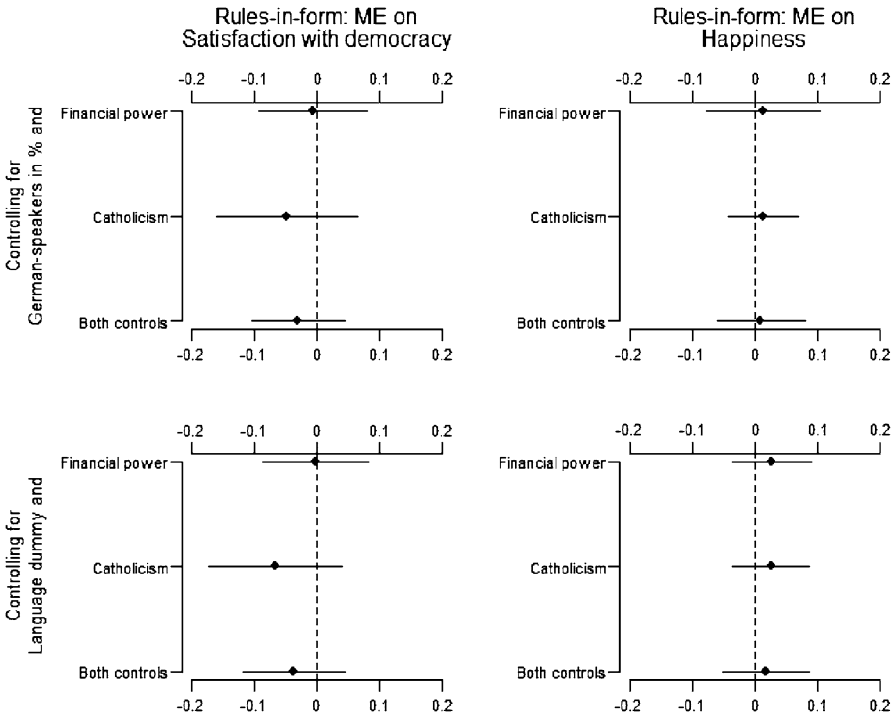

Fig. 4 Rules-in-form—full contextual models. *Note*: Multivariate response multilevel models, posterior mean and 90% credible interval of the direct democratic variable given various combinations of controls. All models control for individual level effects as shown in Table 1 and are based on Bayesian estimation (50,000 iterations, burn-in: 5,000; diffuse priors (gamma priors); no signs of non-convergence)

democracy works. In two out of six models regarding the rules-in-use the 90% credible interval does clearly not contain zero, while in other two (controlling for both a canton's financial power and Catholicism) it only just includes this value.

We, thus, find empirical evidence for the hypothesis that *the use* of direct democracy increases satisfaction with democracy (according to H3 and H4, respectively). This effect is not negligible: A change from 1 to 12 ballot measures per year, which corresponds to the variance observed among the Swiss cantons, increases the average evaluation of the political process by roughly 0.4 (if linguistic culture is measured by means of a regional dummy) and 0.5 (when the linguistic composition of the population is accounted for) respectively. This effect (almost) doubles standard deviation in satisfaction with democracy, which amounts to 0.28.

Finally, the comparison of the deviance information criterion furthermore shows (not presented here) that the inclusion of the controlling variables does not significantly improve model fit—even though they obviously influence the effect of direct democracy. This finding points again to the main problem of the analysis whereby the cantonal political, cultural and economic characteristics are highly correlated and are difficult to disentangle. It comes to no surprise that the language

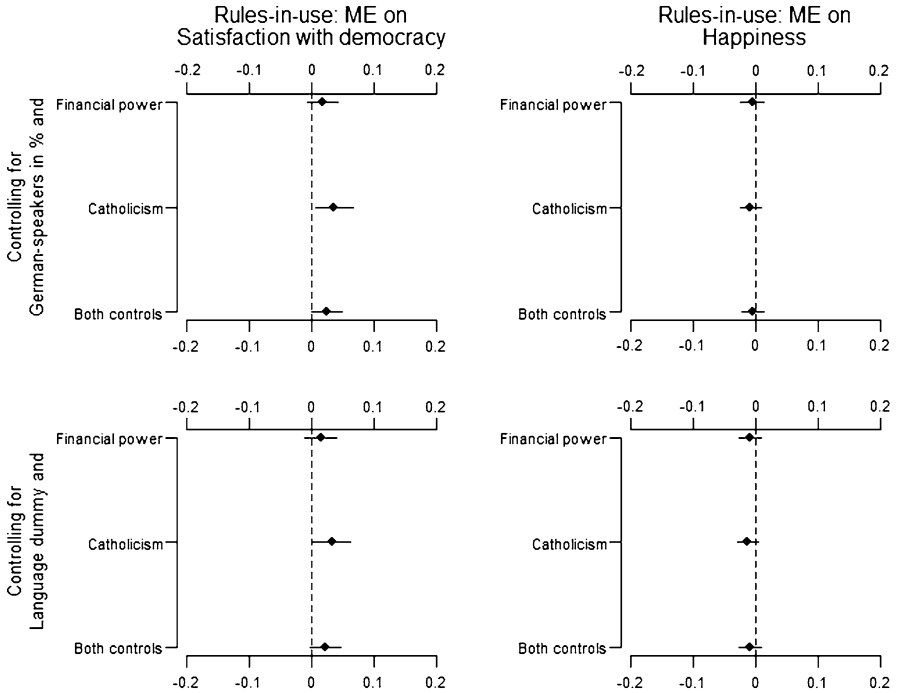

Fig. 5 Rules-in-use—full contextual models. *Note*: Multivariate response multilevel models, posterior mean and 90% credible interval of the direct democratic variable given various combinations of controls. All models control for individual level effects as shown in Table 1 and are based on Bayesian estimation (50,000 iterations, burn-in: 5,000; diffuse priors (gamma priors); no signs of non-convergence)

variables prove to be the strongest variables in the models: These indicators not only capture cultural and political differences between the cantons, but also societal and structural aspects (e.g. family networks, social capital, unemployment; see Freitag 2004; Freitag and Stadelmann-Steffen 2009).[15] In this context and when measuring direct democracy, the rules-in-use variable has important advantages, as this indicator is much less correlated to other cantonal characteristics, particularly to language region, than the rules-in-form.

Conclusions

Are citizens in strong democracies with highly developed direct democratic institutions and frequent ballot use more satisfied with their democratic system and their life than those in more representative democracies? This research question has

[15] It could also be argued that direct democracy differently affects individual satisfaction depending on the linguistic, i.e. cultural context. Further models not presented including an interaction between linguistic diversity and direct democracy however revealed that the relationship between direct democracy and individual satisfaction in Switzerland does not substantially vary between different linguistic environments.

been investigated with respect to the 26 Swiss cantons which offer a unique opportunity to quantify and compare the effects of direct democracy. Whereas previous studies by Frey and Stutzer (2000a, b, c) and Frey et al. (2001) based on Swiss data from 1992 find striking results in that a higher formal degree of direct democracy significantly increases happiness of the people, Dorn et al. (2008) in a recent analysis cannot confirm such a relationship. The aim of our study was first and foremost to advance the existing research theoretically, conceptually and empirically. While Frey and Stutzer (2000a, b, c), Frey et al. (2001) as well as their challengers Dorn et al. (2008) implicitly rely in their theoretical assumptions on *satisfaction with democracy*, they fail to integrate this important concept into their empirical analysis. Thus, in contrast to these previous studies we explicitly incorporated *satisfaction with democracy* into our hypotheses as well as the empirical models to analyse the relationship between direct democracy and individual satisfaction. Moreover, by distinguishing direct democratic rights (rules-in-form) and their actual use (rules-in-use) we used a more elaborated operationalization of direct democracy which better suits the central theoretical argument that the procedural effect of direct legislation on satisfaction is most important. Lastly, new data from the Swiss Volunteering Survey 2006 allowed us to employ multilevel analysis and thus a more suitable method given the research question at hand.

Based on multilevel analysis of the 26 Swiss cantons we conclude that the theoretical assumption on which the traditional happiness hypothesis (Frey and Stutzer 2000a, b, c) is based can be questioned, as there is no evidence for a very close relationship between satisfaction with democracy and satisfaction with life (happiness) or even for causality between them. Moreover, when simultaneously modeling the effect of direct democracy on different aspects of satisfaction, no empirical support for the traditional happiness hypothesis can be found. Thus, a main result of our study is that there is no evidence for a causal relationship between direct democracy and overall well-being. In particular, satisfaction with democracy and with life must be seen as two distinct, though correlated phenomena (see Veenhoven 2000), rendering the theoretical argument of the traditional happiness hypothesis weak.

In contrast, there is some support for the first core element of the happiness hypothesis, namely that extensive direct democracy is associated to higher satisfaction with democracy. This relationship however only holds when measuring direct democracy by means of the actual use of direct legislation, thus taking into account the procedural utility. This confirms our initial assumption that given the theoretical argument the *use* of direct democratic instruments is the better indicator of direct democracy: People living in political systems that use more initiatives and referendums tend to have slightly more positive views of how democracy works and look a bit more favourably on the functioning of their political system. These findings strengthen our central argument that direct democracy has a positive impact on satisfaction with democracy but not on life satisfaction.

While our results regarding subjective well-being are opposed to a series of previous analyses by Frey and Stutzer (2000a, b, c) and Frey et al. (2001) in which they consistently found that direct democracy is a statistically significant positive determinant of happiness, our conclusion is of course in line with the recent study by Dorn et al. (2008) showing that direct democracy does not affect general well-

being in Switzerland. Our reasoning is different though: It is not primarily the inclusion of linguistic culture that lets the direct democratic effect vanish and thus the question of statistical robustness of the empirical results, but rather a more appropriate theoretical model that explicitly integrates both crucial parts of the happiness hypothesis.

In the last decade, a new line of research has commenced about the merits of direct democracy in fields other than specific public choices. Scholars have begun examining whether direct democratic processes have beneficial consequences in areas such as civic engagement and political trust. In a short period of time, a lot of empirical evidence has been presented indicating that greater use of direct democracy leads to higher voter turnout (Smith and Tolbert 2004), increased citizen interest in, and greater knowledge about politics (Smith 2002; Mendelsohn and Cutler 2000; Tolbert et al. 2003), better informed citizens (Benz and Stutzer 2004) and enhanced sense of political efficacy (Bowler and Donovan 2002; Hero and Tolbert 2004; Mendelsohn and Cutler 2000, but see Dyck and Lascher 2009). In sum, such findings confirm earlier statements of prominent advocates of the participatory democracy theory, in particular Pateman's argument (1970, p. 25) that "the more the individual citizen participates the better able he is to do so" as well as Barber's (1984, p. 284) assumption "the referendum can (…) provide a permanent instrument of civic education". In this line of research we can now add a further aspect, namely that the frequent use of direct democracy tends to be related to higher satisfaction with democracy and in this sense strengthens citizens' confidence in government responsiveness. However, at the same time, our findings are in accordance with recent studies from the U.S. and Swiss context challenging this overly optimistic view of direct democracy and casting some serious (both empirical and theoretical) doubts on this line of reasoning (Dyck 2009; Dyck and Lascher 2009; Dyck and Seabrook 2010; Freitag and Stadelmann-Steffen 2010; Schlozman and Yohai 2008). As the results regarding individual life satisfaction show, direct democratic participation is not a panacea for everything: In this vein, subjective well-being is first and foremost an individual feature, which cannot be explained by politico-institutional factors such as direct democracy.

Finally, our analysis of direct democracy is presented with the understanding that the results are based on specific data for Switzerland. Additional research using large surveys and representative samples from different cultural contexts (e.g. US states) and robust statistical modelling, including multi-level frameworks, is necessary to shed more light on this important issue.

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Appendix

See Tables 2, 3, 4 and 5.

Table 2 Hypotheses, operationalization and sources

Variable	Summary statistics	Operationalization/source[a]
Dependent variables		
Life satisfaction	Mean: 8.09 SD: 1.70 Min.: 0 Max.: 10	Life satisfaction measured on a scale from 0 to 10, obtained from responses to the following question: Generally speaking, how satisfied are you with your life? Where would you place yourself on a scale from 0 to 10, where 0 means "very unsatisfied" and 10 means "very satisfied"?
Satisfaction with democracy	Mean: 6.27 SD: 1.95 Min.: 0 Max.: 10	Satisfaction with democracy measured on a scale from 0 to 10, obtained from responses to the following question: Generally speaking, how satisfied are you with how democracy in Switzerland works? 0 means "not at all satisfied", 10 means "very satisfied"
Independent variables—individual level		
Sex	Shares: Men: 42.19 Women: 57.81%	Dummy: 0 = women; 1 = men
Age	Mean: 47.76 SD: 16.67 Min.: 15 Max.: 92	Age (in years) of the persons interviewed Age squared (in years) of the persons interviewed
Foreigner	Shares: Swiss citizen: 87.13% Foreigner: 12.87%	Dummy: 0 = Swiss nationality; 1 = foreigner
Educational level	Shares: Low education: 14.88% Medium education: 53.53% High education: 31.59	Highest completed level of education, three categories: low educational achievements (secondary level I), middle educational achievements (secondary level II), high educational achievements (tertiary level)
Civil status	Shares: Married/cohabiting: 49.96% Single: 50.04%	Dummy: 0 = single, widowed, divorced; 1 = married, cohabiting
Children	Shares: Children: 19.39% No children: 80.61%	Dummy: 0 = no school-aged children; 1 = school-aged child/ren
Income	Mean: 2.95 SD: 1.46 Min.: 1 Max.: 7	Seven categories ranging from fewer than 3,000 CHF to over 15,000 CHF per month
Unemployment	Shares: Unemployed: 2.93% Not unemployed: 97.07%	Dummy: 1 = unemployed; 0 = not unemployed
Religion	Shares: Non-denominational: 13.87% Denominational : 86.13%	Dummy: 0 = has a denomination; 1 = undenominational

Table 2 continued

Variable	Summary statistics	Operationalization/source[a]
Political interest	Mean: 5.44 SD: 2.66 Min.: 0 Max.: 10	Political interest, on a scale from 0 (not at all interested) to 10 (very much interested)
Independent variables—contextual level		
Degree of direct democracy	Mean: 3.89 SD: 1.19 Min.: 1.75 Max.: 5.69	Index of direct democracy, 2003 (Vatter et al. 2009) based on Stutzer and Frey (2000) and Stutzer (1999), higher values indicate more direct citizen participation
Use of direct democracy	Mean: 4.13 SD: 2.32 Min.: 0.6 Max.: 11.5	Number of cantonal ballot measures per year. Mean value 2000–2004 (Année politique suisse, various years)
Language dummy	Shares: Latin cantons: 27.94% German-speaking cantons: 72.06%	Dummy: 1 = German-speaking canton; 0 = Latin canton (based on Federal Statistical Office: population census 2000)
German-speakers in %	Mean: 64.71 SD: 34.22 Min.: 3.9 Max.: 93.5	Share of German-speakrs in a canton (based on FSO 2000; population census 2000)
Catholicism	Mean: 43.42 SD: 20.52 Min.: 16 Max.: 85.8	Proportion of Catholics in the cantonal population (Federal Statistical Office: population census 2000)
Financial power	Mean: 97.18 SD: 43.54 Min.: 30 Max.: 227	Index of cantonal financial power (*Gesamtindex der Finanzkraft*) calculated based on the indicators "aggregate income", "fiscal power", "tax load" and "montane area", 2005 (www.badac.ch)

[a] All individual variables are taken from the Swiss Volunteering Survey 2006

Table 3 Estimated means and standard deviation of models as shown in Fig. 2

	Mean	SD	5%	95%	DIC
Rules-in-form					
SD	0.058	0.041	−0.008	0.126	44120
H	**0.091**	0.026	**0.050**	**0.134**	
Rules-in-use					
SD	**0.033**	0.017	**0.004**	**0.060**	44127
H	−0.006	0.015	−0.031	0.018	

Note: Multivariate response multilevel models, posterior mean of the direct democratic variable (standard deviation in brackets) and 90% credible interval. All models control for individual level effects as shown in Table 1 and are based on Bayesian estimation (50,000 iterations, burn-in: 5,000; diffuse priors (gamma priors); no signs of non-convergence). *Bold* Credible interval does not contain zero (systematic relationship)

SD dependent variable "satisfaction with democracy", *H* dependent variable "individual happiness"

Table 4 Estimated means and standard deviation of models as shown in Fig. 4

	*M*4.1		*M*4.2		*M*4.3		*M*4.4		*M*4.5		*M*4.6	
	SD	*H*	SD	*H*	SD	*H*	SD	*H*	SD	*H*	SD	*H*
Fixed effects												
Constant	6.97 (0.29)	8.96 (0.22)	6.62 (0.28)	9.06 (0.25)	6.79 (0.29)	9.11 (0.24)	6.76 (0.28)	9.09 (0.26)	6.59 (0.28)	9.06 (0.25)	6.96 (0.30)	8.97 (0.22)
Individual level												
	Individual level variables are controlled for											
Contextual level												
Rules-in-form	−0.67 (0.65)	0.26 (0.37)	−0.38 (0.49)	0.17 (0.42)	−0.03 (0.51)	0.27 (0.38)	−0.07 (0.52)	0.12 (0.55)	−0.31 (0.45)	0.09 (0.42)	−0.49 (0.68)	0.13 (0.34)
Language dummy	0.39 (0.17)	0.21 (0.09)	0.30 (0.13)	0.25 (0.11)	0.20 (0.13)	0.22 (0.10)						
German speakers in %							0.03 (0.01)	0.04 (0.02)	0.03 (0.01)	0.04 (0.01)	0.04 (0.02)	0.03 (0.01)
Catholicism	0.03 (0.02)	0.01 (0.01)	0.04 (0.02)	0.01 (0.02)					0.03 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.01)
Financial power			0.03 (0.01)	−0.01 (0.01)	0.02 (0.01)	−0.01 (0.01)	0.02 (0.01)	−0.01 (0.01)	0.03 (0.01)	−0.01 (0.01)		
Random effects												
Variance individual level	3.55 (0.07)	2.68 (0.05)	3.55 (0.07)	2.67 (0.05)	3.55 (0.07)	2.67 (0.05)	3.55 (0.07)	2.67 (0.05)	3.56 (0.07)	2.67 (0.05)	3.55 (0.07)	2.67 (0.05)
Variance cantonal level	0.03 (0.01)	0.00 (0.00)	0.01 (0.01)	0.01 (0.01)	0.02 (0.01)	0.01 (0.00)	0.01 (0.01)	0.02 (0.01)	0.01 (0.01)	0.01 (0.01)	0.03 (0.02)	0.00 (0.00)
DIC	44117		44114		44115		44118		44113		44116	
N	5565 (26)		5565 (26)		5565 (26)		5565 (26)		5565 (26)		5565 (26)	

Note: Multivariate response multilevel models, posterior mean of the direct democratic variable (standard deviation in brackets). All models control for individual level effects as shown in Table 1 and are based on Bayesian estimation (50,000 iterations, burn-in: 5,000; diffuse priors (gamma priors); no signs of non-convergence). The coefficients of the contextual variables (with the exception of the Language dummy) have been multiplied by 10 in order to make them easier to interpret

SD dependent variable "satisfaction with democracy", *H* dependent variable "individual happiness"

Table 5 Estimated means and standard deviation of models as shown in Fig. 5

	*M*5.1		*M*5.2		*M*5.3		*M*5.4		*M*5.5		*M*5.6	
	SD	*H*	SD	*H*	SD	*H*	SD	*H*	SD	*H*	SD	*H*
Fixed effects												
Constant	6.70 (0.27)	9.07 (0.21)	6.76 (0.24)	9.17 (0.20)	6.50 (0.27)	9.11 (0.22)	6.69 (0.27)	9.04 (0.27)	6.72 (0.25)	9.11 (0.25)	6.49 (0.27)	9.08 (0.22)
Individual level												
	Individual level variables are controlled for											
Contextual level												
Rules-in-use	0. 32 (0.18)	−0.13 (0.10)	0.14 (0.16)	−0.10 (0.11)	0.21 (0.15)	−0.09 (0.11)	0.36 (0.18)	−0.09 (0.10)	0.17 (0.15)	−0.06 (0.11)	0.24 (0.15)	−0.05 (0.11)
Language dummy	0.21 (0.09)	0.27 (0.05)	0.16 (0.08)	0.26 (0.05)	0.18 (0.08)	0.27 (0.05)						
German speakers in %							0.02 (0.01)	0.03 (0.01)	0.02 (0.01)	0.03 (0.01)	0.02 (0.01)	0.03 (0.01)
Catholicism	0.03 (0.02)	0.01 (0.01)			0.04 (0.02)	0.01 (0.01)	0.03 (0.02)	0.01 (0.01)			0.03 (0.02)	0.01 (0.01)
Financial power			0.02 (0.01)	−0.01 (0.01)	0.02 (0.01)	−0.01 (0.01)			0.02 (0.01)	−0.01 (0.01)	0.02 (0.01)	−0.00 (0.00)
Random effects												
Variance individual level	3.55 (0.07)	2.68 (0.05)	3.56 (0.07)	2.68 (0.05)	3.55 (0.07)	2.68 (0.05)	3.55 (0.07)	2.67 (0.05)	3.56 (0.07)	2.67 (0.05)	3.55 (0.07)	2.68 (0.05)
Variance cantonal level	0.02 (0.01)	0	0.01 (0.01)	0	0.01 (0.01)	0	0.01 (0.01)	0	0.01 (0.01)	0	0.01 (0.01)	0
DIC	44116		44115		44114		44114		44113		44112	
N	5565 (26)		5565 (26)		5565 (26)		5565 (26)		5565 (26)		5565 (26)	

Note: Multivariate response multilevel models, posterior mean of the direct democratic variable (standard deviation in brackets). All models control for individual level effects as shown in Table 1 and are based on Bayesian estimation (50,000 iterations, burn-in: 5,000; diffuse priors (gamma priors); no signs of non-convergence). The coefficients of the contextual variables (with the exception of the Language dummy) have been multiplied by 10 in order to make them easier to interpret

SD dependent variable "satisfaction with democracy", *H* dependent variable "individual happiness"

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